



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) **EP 0 842 794 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**14.07.1999 Bulletin 1999/28**

(51) Int Cl.<sup>6</sup>: **B60C 11/01, B60C 11/00,  
B60C 11/13**

(43) Date of publication A2:  
**20.05.1998 Bulletin 1998/21**

(21) Application number: **97308916.2**

(22) Date of filing: **06.11.1997**

(84) Designated Contracting States:  
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC  
NL PT SE**

(72) Inventor: **Matsumoto, Hiroyuki**  
**Kodaira City, Tokyo (JP)**

(30) Priority: **15.11.1996 JP 30435396**

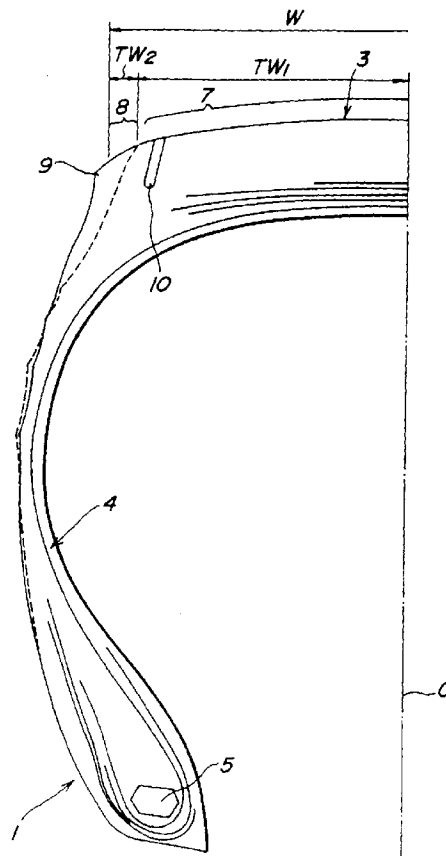
(74) Representative: **Whalley, Kevin**  
**MARKS & CLERK,**  
**57-60 Lincoln's Inn Fields**  
**London WC2A 3LS (GB)**

(71) Applicant: **Bridgestone Corporation**  
**Tokyo (JP)**

(54) **Pneumatic radial tyres**

(57) A pneumatic radial tire comprises a pair of bead portions (1), a pair of sidewall portions (2), a tread portion (3), a radial carcass (4), and a belt (6), in which the tread portion (3) is comprised of a first tread zone (7) contacting with a flat road surface and a second tread zone (8) projecting toward the side of the first tread zone and contacting with a side of a slant road surface. A half-width ( $TW_1$ ) of the first tread zone (7) and a width ( $TW_2$ ) of the second tread zone (8) satisfy  $TW_2/TW_1 > 2.0 \times 10^{-2}$ . Further, fine grooves (10) are arranged in at least one of both side end vicinities of the first tread zone (7) so that a widthwise opening center ( $G_c$ ) of the fine groove (10) is located within a range of  $0.8TW_1$  to  $0.9(TW_1+TW_2)$  separated from the equatorial plane (O) of the tire toward the side end of the first tread zone (7).

**FIG. 3**



**EP 0 842 794 A3**



European Patent  
Office

EUROPEAN SEARCH REPORT

Application Number  
EP 97 30 8916

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 280 847 A (YOKOHAMA RUBBER CO LTD) 7 September 1988	1,2	B60C11/01 B60C11/00 B60C11/13
Y	* page 2, line 1 - line 3 * * page 2, line 35 - line 51 * * page 4, line 8 - line 14 * * figures 1,2 *	3-5	
Y	FR 2 525 535 A (MICHELIN RECH TECH) 28 October 1983	5	
A	* page 2, line 4 - line 13 * * page 3, line 9 - line 35 * * page 5, line 1 - line 8 * * figures 1,2 *	1-3	
Y	PATENT ABSTRACTS OF JAPAN vol. 016, no. 343 (M-1285), 24 July 1992 & JP 04 103408 A (BRIDGESTONE CORP), 6 April 1992	3	
A	* abstract * * figures 1A-1C, 3A, 3B *	1,2	
Y	PATENT ABSTRACTS OF JAPAN vol. 015, no. 113 (M-1094), 18 March 1991 & JP 03 007604 A (OHTSU TIRE & RUBBER CO LTD:THE), 14 January 1991	4	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	* abstract * * figures 1-4 *	1-3	B60C
A	PATENT ABSTRACTS OF JAPAN vol. 097, no. 002, 28 February 1997 & JP 08 276706 A (BRIDGESTONE CORP), 22 October 1996	1-3	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 May 1999	Examiner Bibollet-Ruche, D
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

EPO FORM 1503 03/82 (PatCo1)

ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.

EP 97 30 8916

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-05-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0280847 A	07-09-1988	JP 2860543 B	24-02-1999
		JP 63184506 A	30-07-1988
		AU 595671 B	05-04-1990
		AU 1013388 A	28-07-1988
		CA 1284613 A	04-06-1991
		US 4890658 A	02-01-1990
FR 2525535 A	28-10-1983	US 4480671 A	06-11-1984
		AR 230223 A	01-03-1984
		AT 386987 B	10-11-1988
		AT 149283 A	15-04-1988
		AU 550512 B	20-03-1986
		AU 1395483 A	03-11-1983
		BE 896499 A	16-08-1983
		BR 8302133 A	27-12-1983
		CA 1195598 A	22-10-1985
		CH 652662 A	29-11-1985
		DE 3314886 A	03-11-1983
		DK 185183 A	27-10-1983
		GB 2118910 A, B	09-11-1983
		JP 1727922 C	19-01-1993
		JP 3011921 B	19-02-1991
		JP 58194606 A	12-11-1983
		LU 84769 A	17-11-1983
		NL 8301301 A	16-11-1983
		OA 7409 A	30-11-1984
SE 458843 B	16-05-1989		
SE 8302259 A	27-10-1983		